UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>26 October 2006</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-7,9,11,13 and 14</u> is/are rejected.

7)☒ Claim(s) <u>8,10 and 12</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>13 December 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>13 December 2005</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 9, 13, and 14 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Dahlman (US 6,222,875) in view of Schramm (US 5,768,307).

Regarding claim 1, Dahlman discloses a method of despreading a multicode

signal that has been generated using two or more spreading codes (fig. 2 c1 and c2)

with different spreading factors (fig. 3 where increasing the level of coding increases the

spreading factor), comprising the steps of: subjecting the signal to a first despreading

step to jointly despread the spreading codes, that employ the different spreading

factors, wherein, during the first despreading step, despreading is performed by a factor

lower than or equal to the lowest spreading factor so that one or more spreading codes

are despread only partially (col. 5 line 66 to col. 6 line 25 where the "common code" is

the code with the lowest spreading factor); and, subjecting the signal or a signal portion

including one or more partially despread spreading codes to one or more further

despreading steps (fig. 4 item 52 shown in more detail in the right half of fig. 5).

Dahlman does not disclose where the first deaspreading step includes a first Fast

Hadamard Transform (FHT).

Schramm discloses a system for despreading codes that uses a Fast Walsh

Transform (i.e. a Fast Hadamard Transform) (col. 4 lines 35-52). Therefore it would be

obvious to one of ordinary skill in the art at the time of the invention to use Schramm's

Fast Walsh Transform in the first and second despreaders of Dahlman in order to

increase efficiency of decoding Walsh codes.

Regarding claim 2, Dahlman in view of Schramm discloses the method of claim

1. Dahlman further discloses wherein the despreading steps are performed in a

cascaded manner (fig. 4).

Regarding claim 3, Dahlman in view of Schramm discloses the method of claim

1, wherein the dimension of the first FHT corresponds to the lowest spreading factor

(since the first FHT decodes the code with the lowest spreading factor as shown in

claim 1, the dimensions of the FHT must inherently be that of the lowest spreading

factor).

Regarding claim 4, Dahlman in view of Schramm discloses the method of claim

1. Schramm further discloses wherein the first despreading step further includes a

permutation operation (fig. 1 where only certain ranges of samples are sent from the

buffers 2 to the different correlators 4).

Regarding claim 5, Dahlman in view of Schramm discloses the method of claim

1. Schramm further discloses wherein one or more of the despreading steps include a

serial-to-parallel conversion (fig. 1 where a serial stream of samples enters the buffer 2,

and parallel streams of samples exit the buffer 2).

Regarding claim 6, Dahlman in view of Schramm discloses the method of claim

1. Dahlman further discloses wherein the one or more further despreading steps

include at least one of a decimating operation, a summation operation, a further FHT,

and a multiplication operation (fig. 5 integrator's 82 and 84, integration being equivalent to summation of samples over a time period).

Regarding claim 7, Dahlman in view of Schramm discloses the method of step 6. Schramm further discloses wherein the decimating operation includes distributing a sequence of input samples according to a predefined distribution scheme over two or more signal branches (fig. 1 where only certain ranges of samples are sent from the buffers 2 to the different correlators 4).

Regarding claim 9, Dahlman in view of Schramm discloses the method of claim 1. Dahlman further discloses wherein the one or more further despreading steps include a multiplication operation that is followed by a summation operation (fig. 5 item 78 followed by item 82, and item 80 followed by item 84).\

Regarding claim 13, Dahlman discloses a despreading apparatus for despreading a multicode signal that has been generated using two or more spreading codes (fig. 2 c1 and c2) with different spreading factors (fig. 3 where increasing the level of coding increases the spreading factor), comprising: a first despreading stage for performing a first despreading step to jointly despread the spreading codes that employ the different spreading factors, wherein during the first despreading step despreading is performed by a factor lower than or equal to the lowest spreading factor so that one or more spreading codes are despread only partially (col. 5 line 66 to col. 6 line 25 where the "common code" is the code with the lowest spreading factor); and at least a second despreading stage for performing one or more further despreading steps with respect to the signal or a signal portion that includes one or more partially despread spreading

codes (fig. 4 item 52 shown in more detail in the right half of fig. 5). Dahlman does not

disclose where the first deaspreading step includes a first Fast Hadamard Transform

(FHT).

Schramm discloses a system for despreading codes that uses a Fast Walsh

Transform (i.e. a Fast Hadamard Transform) (col. 4 lines 35-52). Therefore it would be

obvious to one of ordinary skill in the art at the time of the invention to use Schramm's

Fast Walsh Transform in the first and second despreaders of Dahlman in order to

increase efficiency of decoding Walsh codes.

Regarding claim 14, Dahlman in view of Schramm discloses the despreading

apparatus of claim 12. Dahlman further discloses a receiver for wireless

communications including the dispreading apparatus of claim 12 (fig. 1).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Dahlman (US 6,222,875) in view of Schramm (US 5,768,307) further in view of Reshef

(US 2004/0034676).

Regarding claim 11, Dahlman in view of Schramm discloses the method of claim

1. Dahlman in view of Schramm does not disclose wherein at least the first FHT is

configured as a FHT with reduced operations.

Reshef discloses a Fast Hadamard Transform of radix 4 having reduced

complexity (fig. 7), the reduction in complexity corresponding to a reduced number of

operations (par. 90). Therefore it would have been obvious to one of ordinary skill in the

art at the time of the invention to use Reshef's Fast Hadamard Transform with reduced

complexity in the system of Dahlman in view of Schramm in order to reduce the cost
and complexity of the circuitry when decoding codes of spreading factor 4 or higher.

Allowable Subject Matter

Claims 8, 10, and 12 are objected to as being dependent upon a rejected base
claim, but would be allowable if rewritten in independent form including all of the
limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to MICHAEL J. DIGIOVANNI whose telephone number is
(571)270-7508. The examiner can normally be reached on Monday-Thursday 7:30AM-
5:00PM and every other Friday from 7:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J DiGiovanni/
Examiner, Art Unit 2416
    /Huy D. Vu/
    Supervisory Patent Examiner, Art Unit 2416